

COUNTRY ANALYSIS BRIEFS

Colombia

Last Updated: September 2007

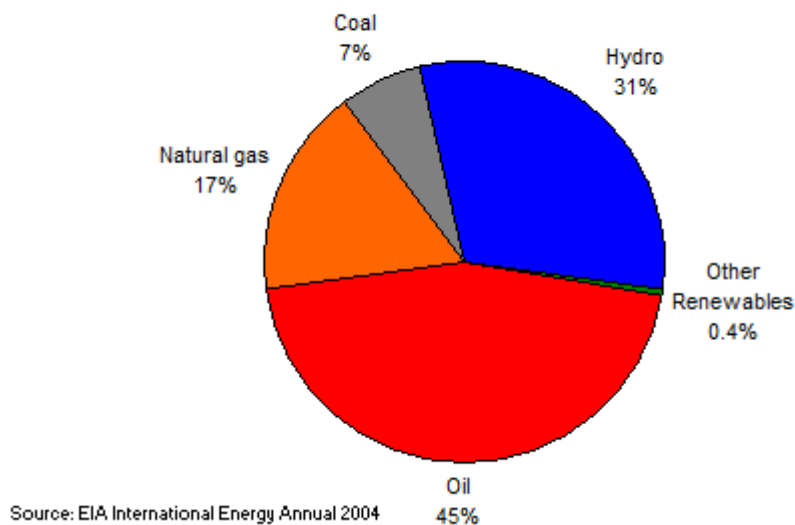
Background

Colombia is an important petroleum and coal exporter, though declining production at its existing fields threatens to reduce the country's oil exports.

Colombia has faced decades of political and economic struggles, much of it linked to narcotics trafficking and civil war. Since taking office in August 2002, President Alvaro Uribe has enacted political, fiscal and social reform policies, combined with increased security measures in order to promote economic growth and stability. The policies of the Uribe administration have had some success in improving economic conditions and the security situation in the country. There has been a substantial reduction in the number of attacks against Colombia's energy infrastructure. However, while the security situation has improved, Colombia's longstanding civil conflict has taken its toll on the country's energy sector, with the country's pipelines and power lines still experiencing occasional sabotage by insurgent groups.



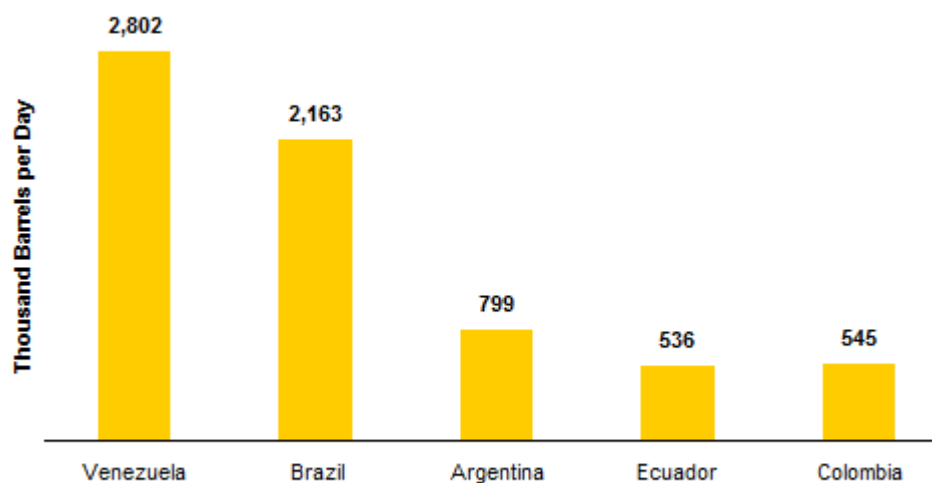
Colombia is a net petroleum exporter, though declining production at its mature fields threatens to turn the country into an oil importer in the medium term. The Colombian government has implemented a partial privatization of state oil company Ecopetrol in an attempt to revive its upstream oil industry. Colombia is also an important producer of high quality coal. Because Colombia relies upon hydropower for the bulk of its electricity needs, it is able to export almost all of its coal production, making it one of the world's largest coal exporters.

Total Energy Consumption in Colombia, by Type (2004)

Oil

Colombia's oil production has declined significantly since peaking in the late 1990s.

According to *Oil and Gas Journal (O&GJ)*, Colombia had 1.45 billion barrels of proven crude oil reserves in 2007, the fifth-largest in South America. The country produced 550,000 barrels per day (bbl/d) of oil in 2006, up from 540,000 bbl/d in 2005. Despite the small rise in production in 2006, Colombia's oil production has declined steadily since 1999, when it peaked at 830,000 bbl/d. The principle cause of the decline has been natural declines at its existing oil fields and a lack of sizable new reserve discoveries. Colombia's oil consumption reached 203,000 bbl/d in 2006. The country exports about half of its oil production, with the bulk of those exports (156,000 bbl/d) going to the United States in 2005. Much of Colombia's crude oil is lighter and sweeter than that of other major Latin American oil producers, with its three export crude oils (Cusiana, Cupiagua and Orito) ranging between 28° and 36° API .

Top 5 South American Oil Producers, 2006

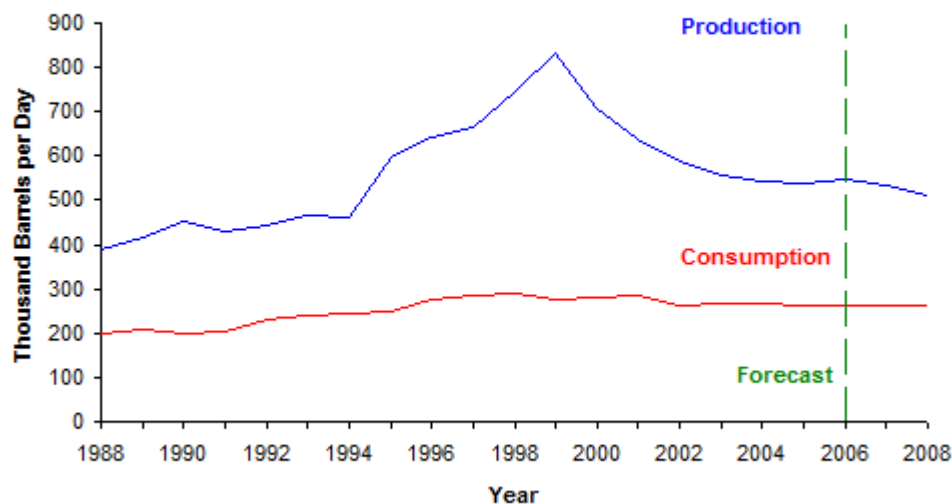
Source: EIA International Petroleum Monthly

Since 1999, Colombia's government has taken measures to make the investment climate more attractive to foreign oil companies. Upstream sector initiatives include allowing foreign oil companies to own 100 percent stakes in oil ventures; the establishment of a lower, sliding-scale royalty rate on oil projects; longer exploration licenses; and forcing state-owned Ecopetrol to

compete with private operators. The sliding scale royalty schedule has been one of the most successful measures introduced by the government. The scale establishes an 8 percent royalty rate on the smallest oil fields; with over 90 percent of Colombia's fields containing less than 60 million barrels, the low royalty rate has encouraged investments by small- and medium-sized operators. The reforms have sparked a renewed interest in Colombia's upstream sector, with record levels of exploratory and development drilling. The improvement in Colombia's security situation has also been a significant contributor to the renewed interest by international oil companies.

The above measures have contributed to creating one of the most attractive oil investment regimes in the world. According to the Agencia Nacional de Hidrocarburos (ANH), the national hydrocarbons regulatory agency, Colombia signed 11 new exploration and production contracts during the first half of 2007. Foreign oil companies invested an estimated \$2 billion in the country in 2006. As a result, Colombia seems to have lessened the decline in its oil production: after declining by an average of 8 percent per year from 2000-2004, Colombia's crude oil production declined by 0.6 percent in 2005 and increased by 1 percent in 2006. Nevertheless, Colombia still faces many challenges in its upstream oil sector, including a lack of proven oil reserves and steep decline rates at its largest oil fields. As a result, EIA forecasts that Colombian oil production will decline at around 4 percent per year in the short term, reaching 530,000 bbl/d in 2007 and 510,000 bbl/d in 2008.

Colombia's Oil Production and Consumption



Source: EIA International Energy Annual; Short Term Energy Outlook

Exploration and Production

The bulk of Colombia's crude oil production occurs in the Andes foothills and the eastern Amazonian jungles. The largest field in the country is the Cusiana/Cupiagua complex operated by BP. Cusiana/Cupiagua represents the bulk of the decline in Colombia's national oil production: production at the field has fallen from 400,000 bbl/d in 1999 to 170,000 bbl/d in 2006. Colombia's second largest field is Cano Limon, operated by Occidental. Production at Cano Limon has also fallen, from 95,000 bbl/d in 2004 to 35,000 bbl/d in 2006. Other important oil projects in Colombia include the Suroriental field, operated by a consortium led by Petrotesting Colombia; the Guando field, operated by Petbras and Canada's Nexen; and the Orito block, operated by Canada's Petrobank Energy and Resources.

Colombia has numerous, smaller fields spread throughout the oil-producing regions of the country. Vast unexplored and potentially hydrocarbon-rich territories remain in Colombia, which shares many of the geological features of its oil-rich neighbor Venezuela. Colombia's offshore Caribbean basins have also received more attention in recent years, with ANP offering 13 exploration blocks there in 2006.

Pipelines

Colombia has five major oil pipelines, four of which connect production fields to the Caribbean export terminal at Covenas. These include the 500-mile Orensa pipeline, which transports 615,000 bbl/d from the Cusiana and Cupiagua fields; the 460-mile Cano Limon pipeline; and the smaller Alto Magdalena and Colombia Oil pipelines. The fifth pipeline, the TransAndino, transports crude from Colombia's Orito field in the Putumayo basin to Colombia's Pacific port at Tumaco; TransAndino also carries crude oil produced in Ecuador.

Downstream

According to OGJ, Colombia had 285,850 bbl/d of crude oil refining capacity in 2007. The country has five major refineries, all owned by Ecopetrol. The largest is the Barrancabermeja-Santander facility, with a capacity of 205,000 bbl/d. In 2006, Switzerland's Glencore International and Ecopetrol launched an \$800 million expansion of the Cartegena refinery. The project, scheduled for completion by 2010, will increase output from 75,000 bbl/d to 140,000 bbl/d and upgrade the facility to produce refined products that meet higher specifications. Although Colombia is a net oil exporter, it must import petroleum products, as domestic demand outstrips refining capacity.

Biofuels

There have been several new biofuels projects announced in Colombia in recent years. In 2006, a consortium of Colombian companies announced that they would build three ethanol plants in the country, with a total production capacity of 5,600 bbl/d. The plants will mainly target export markets, but will also sell some of their production domestically. The Colombian government has established a goal of blending all gasoline sold in the country with at least 10 percent ethanol.

Ecopetrol formed a joint venture in 2007 with a local palm oil producers to build a biodiesel plant in Barrancabermeja, with a capacity of 2,000 bb/d. Ecopetrol aimed to blend most of the plant's output with conventional diesel fuel produced by its refinery in the city.

Natural Gas

OGJ reported that Colombia had proven natural gas reserves of 4.0 trillion cubic feet (Tcf) in 2007. The country produced and consumed 236 billion cubic feet (Bcf) in 2005, both slightly higher than 2004. The government's Plan de Masificación de Gas Natural (Natural Gas Mass Consumption Plan) aims to increase domestic natural gas use and establish Colombia as the "gas hub" for the Andean region.

Exploration and Production

Colombia has natural gas reserves spread across 18 basins, seven of which have active production. The bulk of Colombia's natural gas reserves are located in the Llanos basin, although the Guajira basin accounts for most of current production. Chevron is the largest natural gas producer in Colombia.

In June 2004, BP was awarded a natural gas production license for the Cuisiana/Cupiagua complex, which the company hopes will compensate for the reduction in oil production at the site. The company announced in August 2006 that it would not pursue a proposed gas-to-liquids (GTL) project at the site, due to rising costs.

Pipelines

Ecogas operates some 2,000 miles of natural gas trunk pipelines in Colombia. The three main lines include the Ballena- Barrancabermeja, linking Chevron's Ballena field on the northeast coast to Barrancabermeja in central Colombia; the Barrancabermeja-Nevia-Bogota line, which integrates the Colombian capital into the transmission network, and the Mariquita-Cali line through the western, Andean foothills. There are other small stretches of pipeline operated by private firms.

In April 2003, Colombia and Venezuela agreed to build a \$320-million, 200-Mmcf/d natural gas pipeline linking Colombia's Guajira basin to Venezuela's Maracaibo region. Initially, the pipeline will carry natural gas from Colombia to Venezuela, but there has also been talk of eventually reversing the flow of the pipeline to allow Venezuelan natural gas exports instead. Construction on the project began in late 2006, with completion slated for late 2007.

Coal

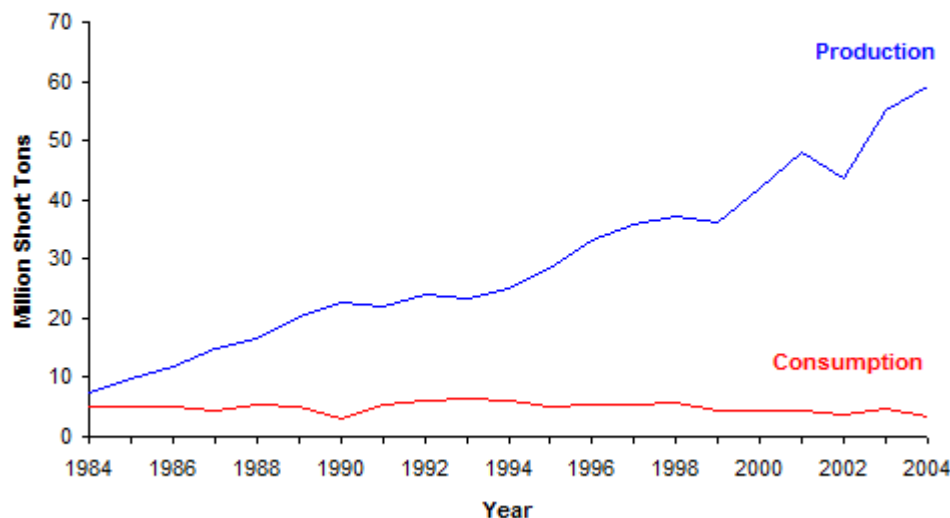
Colombia had 7,300 million short tons (Mmst) of recoverable coal reserves in 2005, consisting of high-quality bituminous coal and a small amount of metallurgical coal. The country has the

The Colombian government has sought to encourage greater domestic consumption of natural gas.

Colombia is one of the world's largest coal exporters.

second-largest coal reserves in South America, behind Brazil, with most of those reserves concentrated in the Guajira peninsula in the north and the Andean foothills. Colombia's coal is relatively clean-burning, with a sulfur content of less than 1 percent. Over the past decade, production has more than doubled, reaching 59.2 Mmst in 2004. It is likely that Colombia's coal production will continue to increase in coming years, as exploration and profitable developments continue throughout the north and interior of the country. According to estimates from the Colombian government, the country's coal production could reach 102 Mmst by 2010.

Colombia's Coal Production and Consumption



Source: EIA International Energy Annual; Short Term Energy Outlook

Sector Organization

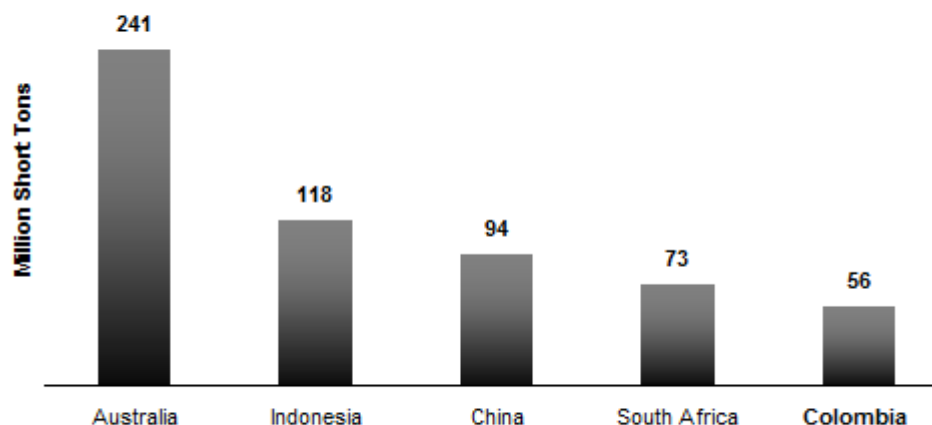
Colombia completed the privatization of its coal sector in 2004 with the closing of Minercol, the former state-owned coal company. The largest coal producer in the country is the Carbones del Cerrejon consortium, composed of Anglo-American, BHP Billiton, and Glencore. The consortium operates the Cerrejon Zona Norte (CZN) project, the largest coal mine in Latin America and the largest open-cast coal mine in the world. CZN, which consists of an integrated mine, railroad, and coastal export terminal, produces about 30 Mmst per year. Carbones del Cerrejon has announced that it will invest \$1 billion into the mine, in an attempt to increase production to 40 Mmst per year by 2011.

Drummond operates the second-largest coal mine in Colombia, La Loma, also an integrated mine-railway-port project, producing around 25 Mmst per year. The company also owns the El Descanso mine, in the vicinity of La Loma. In 2004, Glencore announced that it would purchase the Jagua coal mine, Colombia's third-largest, combining it with its existing integrated coal project, Prodeco. The acquisition will give Glencore total coal production capacity in Colombia of around 8 Mmst per year.

Exports

Currently, most Colombia coal exports go to Europe, North America, and Latin America, as the vast majority of Colombia's coal producing and exporting infrastructure is located on the Caribbean coast. In 2006, the U.S. imported 25.3 Mmst of coal from Colombia, about one-half of Colombia's total coal exports, 70 percent of total U.S. coal imports and 2 percent of total U.S. coal consumption. There has been discussion that a planned expansion of the Panama Canal would allow Colombia to export coal to new markets in Asia. Some of the non-integrated coal mines in Colombia export their production via the Venezuelan ports of La Cieba and Maracaibo.

Top 5 Net Coal Exporters



Source: EIA International Energy Annual

In order to sustain the rise in coal exports, Colombia will need to invest in transportation infrastructure to remove potential production bottlenecks. In May 2006, President Uribe announced plans to build a \$300 million export terminal near Santa Marta. The facility will have special measures to reduce the spreading of coal dust in the nearby area, a popular tourist destination.

Profile

Energy Overview

Proven Oil Reserves (January 1, 2007E)	1.5 billion barrels
Oil Production (2006E)	545.1 thousand barrels per day
Oil Consumption (2006E)	262.7 thousand barrels per day
Crude Oil Distillation Capacity (2006E)	285.0 thousand barrels per day
Proven Natural Gas Reserves (January 1, 2007E)	4.5 trillion cubic feet
Natural Gas Production (2005E)	236 billion cubic feet
Natural Gas Consumption (2005E)	236 billion cubic feet
Recoverable Coal Reserves (2004E)	7,300 million short tons
Coal Production (2004E)	59.2 million short tons
Coal Consumption (2004E)	3.2 million short tons
Electricity Installed Capacity (2004E)	13.7 gigawatts
Electricity Production (2004E)	46.9 billion kilowatthours
Electricity Consumption (2004E)	42.0 billion kilowatthours
Total Energy Consumption (2004E)	1.2 quadrillion Btu
Total Per Capita Energy	28.2 million Btu

Consumption (2004E)

Energy Intensity (2004E) 4,200.6 Btu per 2000\$

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2004E) 55.3 million metric tons

Per-Capita, Energy-Related Carbon Dioxide Emissions (2004E) 1.31 metric tons

Carbon Dioxide Intensity (2004E) 0.19 metric tons per 2000\$

Environmental Issues deforestation; soil and water quality damage from overuse of pesticides; air pollution, especially in Bogota, from vehicle emissions

Major Environmental Agreements party to: Antarctic Treaty, Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Marine Life Conservation, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands signed, but not ratified: Law of the Sea

Oil and Gas Industry

Organization Mostly privatized and open to foreign investors. State-owned Ecopetrol still controls some production resources.

Major Oil/Gas Ports Tumaco, Cartagena, Covenas

Foreign Company Involvement BP, Occidental, ChevronTexaco

Major Oil Fields Cupiagua/Cusiana; Cano Limon, Suroriente, Guando.

Major Natural Gas Fields Chuchupa, Ricohacha, and Ballena.

Major Pipelines Ocesa, Cano Limon pipeline, Alto Magdalena, Colombia Oil, TransAndino, Mariquita-Cali, Ballena-Barrancabermeja, Barrancabermeja-Neiva-Bogota

Major Refineries (capacity, bbl/d) Barrancabermeja - Santander (205,000 bbl/d), Cartagena (75,000 bbl/d); Apiay (2,250 bbl/d), Orito (1,800 bbl/d), and Tibu (1,800 bbl/d)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

**GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.

Links**EIA Links**

[EIA - Country Information on Colombia](#)

U.S. Government

[CIA World Factbook, Colombia](#)

[U.S. Census Bureau, U.S.-Colombian Trade](#)

[U.S. State Department Consular Information Sheet, Colombia](#)

Foreign Government Agencies

[Colombia Government Trade Bureau in Washington, D.C.](#)

[Ministry of Energy and Mines](#)

[Departamento Administrativo Nacional de Estadística](#)

Oil and Natural Gas

[Occidental Petroleum](#)

[Ecogas](#)

[Ecopetrol, Colombian National Oil Company](#)

Coal

[Cerrjon Coal Project](#)

[Drummond](#)

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U.S. Geological Survey
World Markets Analysis

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